

BOTANICAL GAZETTE

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UNDESCRIBED PLANTS FROM GUATEMALA AND
OTHER CENTRAL AMERICAN REPUBLICS. XVII.

JOHN DONNELL SMITH.

(WITH PLATE I)

THIS paper includes some new species, detected in the series of Costa Rican plants collected by Professor Pittier and his assistant employees of the National Herbarium of Costa Rica. Mr. E. W. Nelson's collections in Guatemala, submitted to me by the Smithsonian Institution for determination, have also furnished several novelties.

Guatteria oliviformis Donnell Smith. — Folia subtus praesertim ad nervos pubescentia oblongo-elliptica et utrinque acuta aut e basi obtusa elliptica et cuspidata. Pedunculi axillares solitarii crassi floris parvi diametrum subaequantes supra basin articulati et pluri-bracteolati. Petala cano-velutina subaequalia orbiculari-ovata. Baccae circiter 20 magnae ellipticae stipitibus crassis altero tanto longiores.

A small tree. Pubescence ferruginous. Leaves shortly petiolate, coriaceous, glabrous above except midrib, $4-7 \times 1\frac{3}{4}-2$ in. Peduncles 9-11 l. long; bracteoles present only in the bud, 4-5, amplexicaul. Sepals orbicular, acuminate, 2 l. long, glabrous within. Petals obtuse, 4-5 l. long, thickened externally at base with a sericeous triangle. Stipes pubescent at angles and little longer than ovary, stigmas pubescent, facets of torus pilose. Berries 9×5 l., each end obtuse.

Rio Segundo, Volcán de Barba, Costa Rica, alt. 6000 ft., Jan. 1890, Tonduz, no. 1740 herb. nat. C. R. — Páramos del Abejónal, C. R., alt. 5700 ft., Apr. 1893, Tonduz, no. 7802 herb. nat. C. R.

Guatteria dolichopoda Donnell Smith.—Folia lanceolato-oblonga longe acuteque acuminata deorsum cuneata. Pedunculi axillares solitarii graciles floris viridis sericei diametrum aequantes et in primi trientis articulatione et in basi bracteolati. Petala extus ad basin versus ochroleuco-sericea parum inaequalia obtusa, exteriora oblonga, interiora oblongo-ovata excrescendo oblongata intus ad basin versus glabra sepalis ter quaterve longiora. Stipites filiformes baccas ovaes numerosissimas 3-4-plo superantes.

Tree 20 ft. high with reclinate branches and a dusky patent pubescence. Leaves chartaceous, pilose, at length glabrescent, paler beneath, $5-7 \times 1\frac{1}{2}-2$ in. Buds yellow-sericeous. Peduncles $1\frac{1}{4}-1\frac{3}{4}$ in. long; bracteoles oblong-ovate, 2 l. long, caducous. Sepals ovate, acuminate, $2\frac{1}{2}$ l. long, glabrous within. Exterior petals sericeous throughout, 9×3 l., the interior $10 \times 4-5$ l. Ovaries shorter than the sericeous stipes; torus hemispherical, excavate. Berries 30-50, green, glabrous, obtuse at each end, 4×3 l.; stipes red, glabrous, 11-16 l. long, chiefly equaling the upper article of peduncle, torus 4 l. broad.—To be located with *G. nigrescens* Mart.

Shiroles, Talamanca, Costa Rica, alt. 300 ft., Feb. 1895, Pittier & Tonduz, no. 9166 herb. nat. C. R.—La Concepción, Llanos de S. Clara, C. R., alt. 700 ft., Feb. 1896, Donn. Sm., no. 6429 Pl. Guat., etc., qu. ed. Donn. Sm.

Asimina Costaricensis Donnell Smith.—Glaberrima. Folia membranacea elliptico-oblonga abrupte longeque acuminata, summo apice obtuso, basi acuta, nervis lateralibus utrinque 7-8 tenuibus. Pedunculi laterales elongati, toro depresso-globoso nodoso, baccis circiter 8 oblongis pedunculum aequantibus breviter stipitatis, seminibus circiter 14 biserialibus.

Leaves $6-8 \times 1\frac{3}{4}-2\frac{3}{4}$ in., petioles 3-4 l. long. Peduncles remote from axil, $1\frac{3}{4}$ in. long, thickened upwards, recurved. Torus 5 l. in diameter, stipes 5 l. long; berries 24×10 l., fleshy, smooth and shining; seeds oblong, 7×4 l., obtuse at each end, vertically slightly compressed, pale yellow, incompletely enclosed by membranaceous ruptured arillus.

Sipurio, Talamanca, Costa Rica, alt. 600 ft., Apr. 1894, Tonduz, no. 8709 herb. nat. C. R.

Capparis filipes Donnell Smith. (Subgen. BREYNIATRUM DC.) —Lepidota. Folia brevissime petiolata paene pedalia oblongo-obovata abrupte longeque acuminata ad basin acuta, juniora utrinque adulta subtus argenteo-lepidota. Pedunculi filiformes,

pedicellis gracilibus singulis aut usque ad 6 umbellatim confertis. Petala ovalia sepalis 5-plo longiora a staminibus dimidio a gynophoro bis superata.

Scales stellate; those of branchlets, petioles, inflorescence and flowers ferruginous. Leaves $6-11 \times 2\frac{3}{4}-3\frac{3}{4}$ in., caudate apex $\frac{1}{2}-1\frac{1}{2}$ in. long, petioles 2-4 l. long. Peduncle terminating short axillary branches, $2\frac{1}{2}-3\frac{1}{2}$ in. long, pedicels 10 l. long. Sepals triangular, 1 l. long, twice exceeding scales of disk. Petals cano-tomentose sprinkled with scales. Stamens about 20. Ovary cano-tomentose, 2 l. long; gynophore glabrous, 10 l. long. Berry not seen.—A most distinct species in the subgenus by the large leaves and the slender axes of inflorescence.

Suerre, Llanos de S. Clara, Costa Rica, alt. 900 ft., Apr. 1896, Donn. Sm., no. 6433 Pl. Guat., etc., qu. ed. Donn. Sm.—Santa Clara, C. R., Sept. 1896, Cooper, no. 10,238 herb. nat. C. R.

Trigonía thyrsifera Donnell Smith. (§ CYMOSAE Warm.)—Folia discoloria supra glabrescentia subtus niveo-tomentulosa elliptico-vel obovato-oblonga utrinque acuta, costis petiolisque sicut inflorescentia fuscis. Paniculae axes primarii pauci oppositi erecti elongati thyrsoides, secundarii breves crebri cymas ter quaterve dichotomas subaequantes, floribus minimis. Sepala extus nivea intus glabra.

Arborescent (Biolley), branchlets quadrangular. Leaves somewhat bulate, $4\frac{1}{2}-6 \times 1\frac{3}{4}-2\frac{1}{4}$ in., base and apex slightly conduplicate, nerves 8-9 to the side. Petioles $\frac{1}{2}$ in. long. Panicle contracted, nearly a foot long, branches in about two pairs, 6-7 in. long; bracts foliaceous, elliptical, $2 \times \frac{3}{4}$ in., each end rounded. Peduncles 5 l. long; bractlets $\frac{3}{4}-1\frac{1}{2}$ l. long, triangular-lanceolate, incurved, canescent; flowers crowded, pedicels $\frac{1}{2}-1$ l. long. Sepals $1\frac{1}{2}-2$ l. long. Petals white (Biolley), $1\frac{1}{2}-2$ l. long; the spur globose, 1 l. long, equaling the orbicular-obovate blade. Perfect stamens 6. Glands 2, transversely oblong, crenate. Ovary sericeous, ovate. Capsule not seen.

Llanos de Surubres, Prov. Alajuela, Costa Rica, alt. 600 ft., July 1890, Biolley, no. 2638 herb. nat. C. R.

Waltheria rhombifolia Donnell Smith.—Arborea, ramulis petiolisque tomentosis. Folia dentata rugosa supra scabrida subtus cano-velutina obovato-vel ovali-rhomboidalia acuta, inferiora magis ovalia, ad basin rotundam 3-5-nervia. Glomeruli axillares sessiles maximi cano-sericei, bracteis obtusis, lateralibus

spatulatis, mediana obovata 2-3-lobata. Petala anguste spatulata calycem staminaque aequantia, antheris sessilibus.

Indument glandular-punctate. Stipules subulate, 3 l. long. Leaves $3-5 \frac{1}{4} \times 1 \frac{1}{2}-2 \frac{1}{2}$ in., the younger cano-velutinous on both sides, nerves above base 6-7 to the side, petioles 3-5 l. long. Glomerules of condensed cymes capituliform, at length an inch in diam. Calyx cano-sericeous, subequalling bracts, $2 \frac{1}{4}$ l. long; teeth triangular, $\frac{1}{4}$ l. long. Filaments completely united in a tube, thrice longer than the linear anthers. Ovary villose, style pubescent, shortly exsert, stigma globose. Seed obovoid, not compressed, glabrous.—*W. glomerata* Presl. appears to be the most nearly related species and differs chiefly by leaves and nearly free filaments.

Rio Ceibo, Costa Rica, alt. 750 ft., Feb. 1891, Tonduz, no. 4038 herb. nat. C. R.—Boruca, C. R., Nov. 1891, Pittier, no. 4574 herb. nat. C. R.—Buenos Ayres, C. R., alt. 900 ft., Jan. 1892, Tonduz, no. 6696 herb. nat. C. R.—Mozote de Caballo, C. R., Jan. 1892, Pittier, no. 7061 herb. nat. C. R.

Zanthoxylum procerum Donnell Smith. (§ TOBINIA Desv.; Triana et Planch.)—Arbor excelsa aculeata glabra. Folia maxima 2-6-juga abrupte pinnata, foliolis oblongo-vel obovato-ellipticis, apice acuminato, basi attenuata, margine leviter crenulato glandulifero. Corymbi terminales ampli decompositi, floribus minimis dioicis. Sepala semiorbicularia petalis ellipticis 3-plo breviora. Ovarium monogynum.

Tree 40-50 ft. high. Spines conical. Common petiole prickly beneath, 8-14 in. long. Leaflets coriaceous, shining, midrib and nerves prominent beneath, shortly petiolulate, the upper $5 \frac{1}{2}-6 \frac{3}{4} \times 1 \frac{3}{4}-2$ in., the lower smaller and less elongated. Axes of corymb canaliculate by decurrent triangular bracteoles. Flowers crowded, $\frac{3}{4}$ l. long, exceeding pedicels. Petals imbricate, obtuse, concave. Of masculine flowers stamens exserted; rudimentary ovary sessile, conical. Of feminine flowers squamules none; ovary globose, punctate, shorter than style, twice longer than gynophore. Fruit not seen.—Nearest to *Z. Pringlei* Watson.

S. Mariá de Dota, Comarca de Punta Arenas, Costa Rica, alt. 3900 ft., Apr. 1890, Tonduz, no. 2348 herb. nat. C. R.—S. Domingo, Golfo Dulce, C. R., Apr. 1896, Tonduz, no. 9920 herb. nat. C. R.—La Emilia, Llanos de S. Clara, C. R., alt. 700 ft., May 1896, Donn. Sm., no. 6469 Pl. Guat., etc., qu. ed. Donn. Sm.

Colubrina spinosa Donnell Smith.—Spinis axillaribus armata. Folia glabrescentia integra penninervia ovalia, apice obtuse acuminato, basi biglandulari cuneata vel rotunda. Pedunculi pluri-

fasciculati graciles. Petala calycis dentes vix aequantia. Discus crenatus. Drupa magna ecostata pallida, coccis bivalvibus, seminibus orbicularibus rubescentibus punctulatis.

Buds, petioles, peduncles and calyx ferruginous-pubescent. Spines slender, 6-8 l. long. Leaves $3\frac{1}{2}$ - $5\frac{1}{2}$ \times $1\frac{3}{4}$ - $2\frac{1}{2}$ in., nerves prominent beneath and about eight to the side. Peduncles bracteose at base, about 7 l. long, subequalling petioles. Calyx 1 l. high. Petals oval. Drupe globose, thrice exceeding its cupule, $4\frac{1}{4}$ l. in diam., dehiscing to the middle septically from the base and loculicidally from the apex. Seeds glaucous, convex on one side, plane and slightly angled on the other, 3 l. in diam., cotyledons bright green.

Forests of Boruca, Costa Rica, Nov. 1891, Tonduz, no. 4569 herb. nat. C. R.—Rio Zhorquin, C. R., March 1894, Tonduz, no. 8507 herb. nat. C. R.

Mauria glauca Donnell Smith.—Glaberrima, ramulis petilis costis paniculis glaucis. Folia 3-4-juga saepe abrupte pinnata, foliolis superne olivaceis et lucidis lanceolatis vel oblongo-ellipticis, apice acuto, basi inaequali cuneata. Paniculae axillares et terminales saepissime binae foliis breviores, ramis laxis patulis, inferioribus elongatis.

Tree 20 ft. high with a rounded summit. General petiole 4-6 in. long. Leaflets 4-5 \times $1-1\frac{3}{4}$ in., usually slenderly elongated, margin subundulate, flat midrib and lateral nerves pellucid, the latter numerous and joining only in a marginal nerve. Petiolules 1-2 l. long. Panicles 4-5 in. long; branches few, complanate, loosely flowered, the lowest 2-3 in. long; bracteoles minute, triangular, sometimes pubescent; flowers globose and rubescent in the bud, hermaphrodite. Sepals glabrous, minutely and broadly triangular. Petals pale yellow, oblong-ovate, $1\frac{1}{2}$ l. long, somewhat exceeding stamens. Ovary oblong-ovate, stigmas three and sessile. Immature berry obliquely oval, 4 l. long.—Differing little from *M. Biringo* Tul. except by leaves and inflorescence.

Tres Rios, Costa Rica, March 1887, Pittier, no. 88 herb. nat. C. R.—Rio Ciruelas, C. R., March 1890, Biolley, no. 2229 herb. nat. C. R.—Rio Torres, Prov. S. José, C. R., alt. 3300 ft., Jan. 1896, Tonduz, no. 9848 herb. nat. C. R.—S. José, C. R., alt. 3400 ft., February 1896, Donn. Sm., no. 6461 Pl. Guat., etc., qu. ed. Donn Sm.

Rourea Suerrensis Donnell Smith.—Foliola 3-5 maxima nitida elliptico- vel obovato-oblonga cuspidata ad basin acuta vel obtusa penninervia transversim venosa. Paniculae terminales et ex axillis supremis ortae laxae petiolos subaequantes, floribus majusculis, pedicellis brevibus. Sepala praeter margines glabra

rotundo-ovata tubum multoties excedentia petalis oblongis dimidio breviora, fructigera tubum aequantia capsulae quartam partem amplexantia.

A small tree. Leaves chartaceous, with petiole 2-4 in. long added, 10-15 in. long; terminal leaflet $7-9 \times 2\frac{3}{4}-4$ in., petiolule $1\frac{1}{4}-1\frac{1}{2}$ in. long; lower leaflets often alternate, elliptical, $3\frac{1}{2} \times 1\frac{3}{4}$ in., base obtuse; nerves 5-7 to the side. Calyx in anthesis equaling pedicels, $1\frac{1}{2}$ l. high. Petals $2\frac{1}{2} \times 1$ l., obtuse at each end. The shorter stamens as long as sepals. Carpels pilose, lanceolate, at length much exceeded by styles. Capsule glabrous, 6×3 l. Cupuliform yellow aril embracing a fourth of the seed.

Suerre, Llanos de S. Clara, Costa Rica, alt. 900 ft., Feb. 1896, Donn. Sm. no. 6466 Pl. Guat., etc., qu. ed. Donn. Sm.

Cassia Guatemalensis Donnell Smith. (§ CHAMAESENNA DC. Ser. *Pachycarpæ* Benth.) — Folia 4-8-juga, jugis 2 inferioribus glandula intrapetiolarum instructis, foliolis oblongis utrinque rotundis vel ad imam basin cuneatis, costis marginibusque pilosis. Petala inter minora sepalis parum longiora. Antherarum perfectarum poro duplici apiculatarum 3 ceteris longiores. Leguminis lineari-oblongi valvulae planae, semina obliqua obovoidea.

Fruticose, except leaf surfaces pubescent. Fully grown leaves nearly a foot long; leaflets chiefly in 6-8 pairs, $1\frac{1}{2}-2$ in. \times 6-10 l., decreasing below and more oval, apex mucronulate or retuse, base chiefly rounded, veiny, margins scarious. Stipules linear, 3 l. long. Bracts linear, 4 l. long, present only in undeveloped peduncles. Racemes axillary, subequaling leaves, long-pedunculate, many-flowered. Pedicels subequaling flowers, in fruit 7-9 l. long. Sepals pubescent, suborbicular, the interior 3 l. and the exterior 2 l. long. Petals obovate, 4-3 l., unguiculate, venose. Anthers smooth, incurved, equaling filaments, the longer 3 l. and the shorter $1\frac{1}{4}$ l. long; lamina of staminodes oblong. Ovary flavo-sericeous. Pod smooth, flat, slightly curved, $3\frac{1}{2}$ in. \times 6 l., apex obtuse, base cuneate, shortly stipitate, margins nerviform, dehiscing at each suture. Seeds 8-9, slightly compressed parallel with valves, $4 \times 2\frac{1}{2}$ l. — Nearest perhaps to *C. Botteriana* Benth. The doubt, expressed by M. Micheli (Donn. Sm. Enum. Pl. Guat., etc., 4:45) in referring the Santa Rosa specimen (with flowers only) to *C. corymbosa* Lam., is confirmed by Mr. Nelson's more complete specimens with pods that require the assignment of the plant to a different section of the genus.

Buena Vista, Depart. Santa Rosa, Guat., alt. 5500 ft., Dec. 1892, Heyde & Lux, no. 4176 Pl. Guat., etc., qu. ed. Donn. Sm. — Between San Martin and Todos Santos, Depart. Huehuetenango, Guat. alt. 7000-8500 ft., Dec. 1895, E. W. Nelson, no. 3626.

Alchemilla ocreata Donnell Smith.—Palmaris, caulibus decumbentibus ramosis flavo-sericeis. Folia ocreis amplexicaulia arcte imbricata, laciniis 6–8 lanceolatis vaginam superantibus. Flores terminales pluri-glomerati diandri octogyni.

Cespitous, branching from the base upwards. Segments of leaves 2 l. long, concealing the sheaths, margins revolute. Calyx campanulate, $1\frac{1}{4}$ l. high, dentate nearly to the middle; teeth 8–10, subequal, acute, the exterior lanceolate, the interior ovate. Stamens opposite, occasionally 3. Carpels stipitate, style basilar. Achenia pale, cotyledons orbicular.—*A. nivalis* H. B. et K. (no. 4205 Triana!), the only related species, differs by habit, grayish indument, numerous and narrow leaf-segments, 4-carpellate ovary.

Thickets at General, Comarca de Punta Arenas, Costa Rica, alt. 1800 ft., Jan. 1891, Pittier, no. 3431 herb. nat. C. R.

COMBRETUM FARINOSUM H. B. et K., var. **phaenopetala** Donnell Smith.—Folia subtus lepidibus rubro-punctata. Spicae pubentes cum calycibus et samaris rufo-lepidotae. Petala rotundo-ovalia lobis calycis turbinato-campanulati non satis breviora, disci margine tantum ciliato, antheris minimis.

Near Neuton, Depart. Huehuetenango, Guat., alt. 3000–4000 ft., Dec. 1895, E. W. Nelson, no. 3534.

Loasa bipinnata Donnell Smith.—Tota urenti-setosa et scabrida. Folia triangularia pinnata superne pinnatifida, foliolis utrinque 2–3 petiolulatis oblongo-ellipticis pinnatim lobatis incis, segmentis infimis sejunctis. Petala ad apicem bifida calycis lobis ovatis bis longiora. Squamae lobulis duobus apposis apiculatae. Staminodia lineari-oblonga aristulata.

Leaves alternate, paler and more sparsely setose beneath, 4–6 in. long; leaflets chiefly opposite, $3-4 \times 1-1\frac{1}{2}$ in., those of lower leaves pinnatifid and at base pinnate. Petioles $1\frac{1}{4}$ –2 in. long. Peduncles extra-axillary, short, 1-flowered, in fruit $\frac{3}{4}$ – $1\frac{1}{4}$ in. long. Calyx-lobes acute, 3 l. long. Petals 5–6 l. long, scabrid, sparsely setose, lanceolate, cymbiform, unguiculate, tipped with two slender teeth. Nectariferous scales oblong-ovate, 2 l. long. Anthers didymous. Staminodes $2\frac{1}{4}$ l., the awn $\frac{3}{4}$ l. long. Capsule obconic, 7 l. long.—This may be presumed to be the *Loasa* sp. n. 3 from Guatemala and Costa Rica, cited by Mr. Hemsley as nearest to *L. chelildonifolia* Benth.

Desamparados, Prov. S. José, Costa Rica, alt. 3400 ft., Sept. 1889, Pittier, no. 1314 herb. nat. C. R.—Llanos de Alajuelita, Prov. S. José, C. R., alt. 3200 ft., Dec. 1889, Tonduz, no. 1477 herb. nat. C. R.

Loasa speciosa Donnell Smith.—Setis urentibus horrida. Folia inferiora opposita, subtus praeter nervos esetosa et venis aureo-pubescentibus pulchre reticulata, palmatim 5-fida ad basin cordatam 5-nervia, segmentis triangularibus acute lobatis, terminali maximo. Flores hujus generis maximi. Squamae laciniis calycinis dimidio breviores in apice bifido lobulis 2 intermediis instructae, ad basin plica bilobata appendiculatae.

A large herbaceous plant with leaves 4–5 in. long and broad, and petioles one-half or fully as long. Peduncles axillary, 2–3 in. long, 1-flowered. Flowers 5 in. in diam. Calyx-segments elongate-lanceolate, $1\frac{1}{2}$ in. long, 3-nerved. Petals nearly plane, externally setose and pubescent, oblong-oval, $2\frac{1}{4} \times 1$ in. Nectariferous scales oblong, 8×3 l., exterior lobes 2 l. long, the interior oblong and a half shorter, basal appendages semi-orbicular. Anthers oblong. Staminodes filiform, a half longer than the scales, barbate. Capsules not seen.—Nearest to *L. argemonoides* Humb. et Bonpl.

Forests of Volcán Turrialba, Prov. Cartago, Costa Rica, alt. 7500 ft., Jan. 1889, Pittier. no. 875 herb. nat. C. R.—Same locality, Mch. 1894, F. N. Cox, no. 4812 Pl. Guat., etc., qu. ed. Donn. Sm.

Diplostephium corymbosum Donnell Smith.—Pubescens. Folia elliptico-oblonga acuta ad basin rotundata, marginis subrevoluti crenaturis mucronatis. Corymbi polycephali. Involucri hirtelli a disco superati bracteae lineari-lanceolatae. Flores feminini plerumque 1–interdum pluri-seriati, ligulis violaceis patentibus cum tubo aequilongis discum superantibus. Stylorum disci rami oblongi. Achaenia pubescentia, setis plerisque elongatis aequalibus rubescentibus, paucis brevibus intermixtis.

Shrub 2–3 ft. high. Leaves $2\frac{1}{4}$ – $4 \times \frac{3}{4}$ – $1\frac{1}{2}$ in., strigillose above, velutinous beneath, faintly crenulate. Petioles hirsute, 4–8 l. long. Corymbs obpyramidal, 3–4 in. wide. Heads 3 l. high. Scales of obconic involucre about 4-seriate with acute colored tips. Ligules oblong-elliptical, $1\frac{1}{4}$ l. long, 3-denticulate. Disk-flowers few or numerous.

Todos Santos, alt. 10,000 ft., Dec. 1895, no. 3639, Hacienda de Chancol, alt. 11,000 ft., Jan. 1896, no. 3644, Depart. Huehuetenango, Guat., E. W. Nelson.

Diplostephium paniculatum Donnell Smith.—Praeter faciem superiorem foliorum et capitula totum cano-floccosum. Folia discoloria lanceolato-ovata ad imam basin cuneata, margine revoluta et grandidentata. Panicula ampla pyramidalis decom-

posita. Involucri glabri discum aequantis bracteae lineares. Flores feminini pluri-seriati, ligulis suberectis minimis tubo 3-plo brevioribus discum vix ac ne vix quidem superantibus. Flores disci pauci, styliorum ramis ellipticis. Achaenia glabra, setis plerisque elongatis aequalibusque, paucis minimis intermixtis.

Leaves $3\frac{1}{4}$ –5 \times $1\frac{1}{2}$ –2 in., sharply and mucronately dentate, acute tip entire, green and scabrid above. Panicle 5–7 in. high and as wide at base, axes spreading, the primary ones bracteated by reduced leaves. Heads subequaling pedicels, 2 l. high. Scales of obconic involucre 3-seriate, narrow, obtuse, lacerate. Ligules obovoid, $\frac{1}{3}$ l. long, 3-denticulate. Disk-flowers about 4.—The inflorescence is exceptional, as is also the habit of this and the preceding allied species.

Between San Martin and Todos Santos, Depart. Huehuetenango, Guat. alt. 7000–8500 ft., Dec. 1895, E. W. Nelson, no. 3629.

VERBESINA FRASERI Hemsl., var. **Nelsoni** Donnell Smith.—Folia saepius lobata. Capitula minora plerumque 3-aggregata, involucri bracteis 3-seriatis, serium exteriorum bracteis 1– $1\frac{1}{2}$ -linealibus ovatis crassis adpressis, receptaculi bracteis post lapsum florum in apice lutescentibus. Forsitan species distincta.

Near Neuton, Depart. Huehuetenango, Guat., alt. 3000–4000 ft., Dec. 1895, E. W. Nelson, no. 3551.

Calea Guatemalensis Donnell Smith.—Glaberrima. Nodi exappendiculati. Folia oblongo-elliptica utrinque consimiliter angustata integerrima. Corymbus terminalis amplus polycephalus inferne 3- superne 2-chotomus, bracteis foliaceis sessilibus, pedicellis gracilibus. Involucri hemispherici bracteae 2-seriatae bracteis receptaculi conici breviores. Limbus corollarum tubulosarum tubo paene bis longior exsertus, tubus et ligularum et tubulosarum paleas 4 achaenii tetragoni aequans.

Branches terete, uppermost internodes 2 in. long, the leaves 4–6 \times $1\frac{1}{2}$ – $2\frac{1}{4}$ in., the petioles $\frac{3}{4}$ in. long. Corymb obpyramidal, 5–9 in. wide, bractlets reduced gradually upwards, pedicels an inch or more long with scattered bractlets. Heads $\frac{1}{3}$ in. high and wide. Involucral bracts oblong-ovate, the interior $1\frac{1}{2}$ l. long. Bracts of receptacle oblong, $2 \times \frac{3}{4}$ l., nearly flat, membranaceous, obtuse apex erose. Ray-flowers about 8, ligule oblong-elliptical, $4 \times 1\frac{1}{2}$ l., 4-veined, entire. Disk-flowers numerous, 3 l. long. Achenia oblong, attenuate below, angles ciliolate; pappus triangular-linear, 1 l. long, hyaline, lacerate.—*C. manicata* Benth. et Hook., nearly related,

differs chiefly by interpetiolar appendages, lanceolate and denticulate leaves, smaller heads, less exserted disk-flowers with tube exceeding the limb and the pappus of pappus.

Between San Martín and Todos Santos, Depart. Huehuetenango, Guat., alt. 7,000–8,500 ft., Dec. 1895, E. W. Nelson, no. 3624.

Buddleia megalcephala Donnell Smith.—Lana flavescente induta. Folia longe petiolata integra supra nitida elongato-lanceolata ad basin angustam obtusa. Capitula magna sphaerica longe pedunculata in racemum terminalem disposita, bracteis subulatis, floribus conglomeratis, corollae majusculae campanulato-rotatae lobis orbicularibus cum tubo aequilongis.

Indument stellate. Leaves $7\frac{1}{2}$ – $8\frac{1}{2} \times 1\frac{3}{4}$ –2 in.; nerves 18–20 to the side, spreading at nearly a right angle, arcuate; petioles stout, 1– $1\frac{1}{4}$ in. long. Raceme 6–7 in. long; peduncles stout, in 5–6 pairs, the lowest $1\frac{3}{4}$ in. long; bracts and bracteoles 3–4 l. long, caducous. Heads 7–9 l. in diameter, tomentose. Calyx turbinate, 2 l. high, equaling linear membranaceous bractlets, $\frac{1}{3}$ -lobate, lobes triangular. Corolla 3 l. high, lobes externally tomentulose. Stamens included, oblong anthers affixed below sinuses. Ovary tomentose, style clavate.—Allied to *B. globosa* Lam.

Mountains near Hacienda de Chancol, Depart. Huehuetenango, Guat., alt. 11,000 ft., Jan. 1896, E. W. Nelson, no. 3640.

Tournefortia Nelsoni Donnell Smith. (§ PITTONIA DC.)—Sordide pubescens. Folia pedalia petiolis ter quaterve longiora supra strigilloso-subtus velutino-pubescentia oblongo-ovata longe acuminata ad basin rotunda vel in ima cuneata. Cymae folia aequantis pedunculi axesque pluries dichotomi, spicae plures elongatae. Calycis segmenta lineari-lanceolata inaequilonga. Corollae tubus calycem subduplo lobos ovatos triplo excedens.

Petioles $2\frac{1}{2}$ – $3\frac{1}{2}$ in. long. Leaves 10–12 \times 4– $4\frac{1}{2}$ in.; nerves 10–12 to the side, spreading, anastomosing arcuately at margins. Peduncles 4–6 times furcate. Tube of corolla 3– $3\frac{1}{2}$ l. long. Stamens affixed at throat, anthers sessile and lanceolate. Disk minute. Stigma annular.—Nearest to *T. cymosa* L.

Between San Martín and Todos Santos, Depart. Huehuetenango, Guat., alt. 7000–8500 ft., Dec. 1895, E. W. Nelson, no. 3615.

Ipomoea leucotricha Donnell Smith. (§ PILOSICALYCES Peter in Engl Natuerlich. Pflanzenfam. 68–31)—Tota praeter paginam superiorem foliorum et corollam explanatam argenteo-sericea. Folia discoloria supra sparsim pilosa orbiculari-cordata aucta

integra. Pedunculi folia superantes, axibus dichotomis fastigiatis. Sepala minima aequalia oblongo-ovata, apice cornuto recurvo. Corolla canescens bipollicaris supra calycem in tubum campanulatum ampliata usque ad $\frac{1}{2}$ lobata. Stigma 2-globosum.

Leaves $2\frac{1}{2}$ -4 \times $2\frac{1}{4}$ -3 $\frac{1}{4}$ in. Petioles 1-1 $\frac{1}{2}$ in. long. Cymes 3-4 times dichotomous, corymbiform; bracts and bractlets linear-lanceolate, 3 l. long; pedicels 5-9 l. long. Sepals 3 l. long. Corolla crimson, 2-2 $\frac{1}{4}$ in. long, at throat 1 in. wide. Stamens not reaching to throat, dilated and barbate below, anthers 2 l. long. Ovary glabrous. Capsule not seen.—Near *I. sericophylla* Meissn. non Peter.

Near Neuton, Depart. Huehuetenango, Guat., alt. 3000-4000 ft., Dec. 1895, E. W. Nelson, no. 3512.

Cestrum dasyanthum Donnell Smith.—Glanduloso-pubens. Folia oblongo-ovata ad basin rotunda, margine subundulato, pseudostipulis ovatis. Thyrsi terminales foliosi, floribus extus tomentulosis plerumque terminalibus et aggregatim subspicatis. Corollae tubuloso-infundibularis tubus calyce poculiformi subobsolete denticulato bis longior lobos ovatos acuminatos 3-plo superans, filamentis paulo ultra medium adnatis edentulis tantum ad basin gibbosam pubescentibus.

Leaves slightly pubescent above, more densely so beneath and especially the nerves, $2\frac{1}{4}$ -4 \times $1\frac{1}{4}$ -2 in., petioles $\frac{1}{2}$ - $\frac{3}{4}$ in. long. Thyrses narrowly pyramidal, 3-5 in. long; axes bracteate by reduced leaves, 1-2 in. long; terminal flowers 3-5, the lateral 1-2 and pedicellate; bractlets lanceolate, stipitate, 3 l. long. Calyx 3 \times 2 l. Corolla yellow; tube dilating gradually from base, 7 l. long, at throat 2 $\frac{1}{2}$ l. wide, glabrous within; lobes castaneous, 2 $\frac{1}{2}$ l. long, plicate.—To be located among the species numbered 16-43 of DC. Prodromus.

Between San Martín and Todos Santos, Depart. Huehuetenango, Guat., alt. 7000-8500 ft., Dec. 1895, E. W. Nelson, no. 3622.

MERINTHOPodium Donnell Smith, nov. gen. SOLANACEARUM.—Calyx herbaceus, segmentis 5 valvatis erectis oblongo-lanceolatis paene sejunctis, nonnullis saepe connatis. Corolla tubuloso-campanulata sensim ampliata 15-nervia, lobis imbricatis erectis oblongo-ovatis, sinubus plicatis. Stamina subinclusa infimo tubo inserta, filamentis filiformibus, antheris magnis, loculis parallelis longitudinaliter dehiscentibus. Discus nullus. Ovarium 2-loculare multiovulatum; stylus filiformis exsertus, lamellis ovalibus

ad margines stigmatosis. Bacca ovalis calyce haud aucto cincta, pericarpio membranaceo. Semina pluriseriatim imbricata horizontalia prope basin placentis prominulis affixa ovalia leviter compressa, dorso arcuato, ventre recto; embryo exalbuminosus, cotyledonibus planis orbicularibus subaccumbentibus radícula teretioribus paulo brevioribus.—Frutex epiphyticus. Folia glabra integra penninervia. Pedunculi axillares longissimi penduli, apice confertim racemoso-florifero, pedicellis gracilibus, floribus magnis.

Genus inter Cestrineas inflorescentia corolla seminibus distinctum. Nomen pedunculum funiformem indicat.

Merinthopodium neuranthum Donnell Smith. (*Markea neurantha* Hemsl. Biol. Centr. Am. Bot. 2: 429)—Caulis junior cum pedunculis tuberculatus. Folia elliptico- vel obovato-oblonga cuspidata ad basin acuta, nervis lateralibus utrinque 6–8 marginem versus arcuatim conjunctis, venis paene obsoletis. Flores pulverulenti. Corolla calyce bis terve longior usque ad $\frac{1}{5}$ – $\frac{1}{4}$ lobata, filamentis inferne pubescentibus, antheris fauces superantibus.

Stems stout, pitted with scars of fallen leaves, tubercles tipped with a hair, epidermis exfoliating. Leaves 5–11 × 2–5 in., petioles $1\frac{1}{4}$ –2 in. long. Peduncles filiform, 1–2 ft. long; rhachis 1–2 in. long, often furcate, thickened and densely scarred with articulations of the flowers of former seasons; pedicels subfasciculate 6–13, 1–2 in. long, thickened upwards. Calyx-segments 9–12 l. long, 1-nerved and veiny. Corolla yellowish-green, veiny, very variable in size, $1\frac{1}{2}$ – $2\frac{3}{4}$ in. long; lobes oblong-ovate, 4–7 × $2\frac{1}{2}$ –5 l., obtuse, sinuses 3–5 l. broad, bilobulate. Anthers 6 l. long. Ovary glabrous, conical; lobes of stigma 2 l. long. Berries 9 × 6 l. Seeds 1 l. long.—In describing this species from imperfect material Mr. Hemsley has suggested that its fruit, when known, might show it to represent a new genus.

La Concepción, Llanos de S. Clara, Costa Rica, alt. 700 ft., Febr. 1896, Donn. Sm., no. 6678 Pl. Guat., etc., qu. ed. Donn. Sm.—Atirro, Prov. Cartago, C. R., alt. 2000 ft., Apr. 1896, Donn. Sm., no. 6679 Pl. Guat., etc., qu. ed. Donn. Sm.—La Palma, Prov. S. José, C. R., alt. 4600 ft., Sept. 1896, Pittier, no. 10,174 herb. nat. C. R.

EXPLANATION OF PLATE I.

Fig. 1, flowering branch.—Fig. 2, calyx.—Fig. 3, corolla laid open. Fig. 4, pistil.—Fig. 5, berry.—Fig. 6, berry with pericarp removed. Fig. 7, vertical section of berry.—Fig. 8, seed.—Fig. 9, vertical section of seed.—Fig. 10, embryo.—Fig. 11, tuberculate twig.



C. E. Faxon, del.

MERINTHOPODIUM NEURANTHUM, Donnell Smith.

B. Masett Lith. Boston.

Dicliptera sciadephora Donnell Smith.—Folia ovato-lanceolata in petiolum angustata. Pedunculi folia subaequantes simpliciter et nonnunquam composite umbelliferi, pedicellis 3–6 elongatis capitulum biflorum ferentibus, bracteis involucrialibus lineari-lanceolatis inaequalibus, floralibus 4 conformibus minoribus, floris tertii abortivi bracteis linearibus. Calycis ultra medium fidi lacinae lineari-triangulares. Antherarum loculi connectivo triangulari sejuncti.

Suffruticose, pubescent. Leaves $2\frac{3}{4}$ – $3\frac{1}{2}$ \times $1\frac{1}{4}$ – $1\frac{1}{2}$ in., lineolate chiefly beneath, penninerved, transversely veined, costa and nerves pubescent, petioles 3–5 l. long. Bracts of umbel 2, filiform, 3 l. long; pedicels chiefly 5, subequal, $1\frac{1}{2}$ – $2\frac{1}{2}$ in. long. Heads compressed, pubescent; involucrial bracts filiform-attenuate, 6–7 l., the floral 4 l. long. Flowers pubescent. Calyx $3\frac{1}{2}$ l. long. Corolla 15 l. long. Capsule pubescent, oblong, 5 l. long, stipitate; seeds 4 or fewer, punctulate; retinacula large, from a broadly dilated base triangular.

Jacaltenango, Depart. Huehuetenango, Guat., alt. 3500–5400 ft., Dec. 1895, E. W. Nelson, no. 3584.

Salvia phaenostemma Donnell Smith.—Glabra. Folia orbiculari-ovata acuminata grosse serrata supra parce puberula. Racemorum elongatorum verticillastri crebri 2–8-flori, pedicellis gracilibus, bracteis parvis linearibus persistentibus. Calyx tubuloso-campanulatus compressus, labiis triangularibus aristulatis, superiori integro, inferioris dentibus connatis. Corollae calyce bis longioris tubus tenuis ad fauces ampliatus, labia inaequalia. Genitalia longissima, filamentis elongatis, connectivis deflexis usque ad medium exsertis.

Leaves $2\frac{1}{2}$ –4 \times $1\frac{3}{4}$ – $3\frac{1}{4}$ in., petioles 5–14 l. long. Racemes 1– $1\frac{1}{2}$ ft. long. Pedicels unequal, 4–7 l. long. Calyx 10-nerved, 5–7 l. long, lips 2 l. long, punctulate within. Corolla blue, glabrous, about an inch long; superior lip oblong-elliptical, 3 l. long, entire; the inferior broader, 2 l. long, lateral lobes minute. Stamens and smooth style overtopping corolla by nearly one half its length; sterile branches of connective dentulate, connate. Appendage of disk small, oval.—To be located with *S. affinis* Cham. et Schlecht. *ex char.*

Between Rodes and Malacate, Depart. San Marcos, Guat., alt. 1400–3500 ft., Jan. 1896, E. W. Nelson, no. 3736.

Salvia monochila Donnell Smith.—Cano-pubens. Folia